

7-5-05

FIG. 32 (a) is a rough structural diagram of the reflected light detector according to an eighth embodiment of the present invention, showing the design in the case where the directly reflected light component is detected; FIG. 32 (b) is a rough structural diagram in the case where the scattered light component is detected.

FIG. 33 (a) is a lateral cross-sectional view showing the structure of an optimal photodiode employed as the present invention's light receiving element; FIG. 33 (b) is an electrical circuit for sending out an output.

FIG. 34 (a)-(d) are respective diagrams for explaining the optical characteristics of the photo diode.

FIG. 35 is a lateral cross-sectional view showing the structure of an optimal semiconductor laser employed as the light emitting element in the present invention.

FIG. 36 is a lateral cross-sectional view showing the structure when a photo diode and a semiconductor laser are formed onto the same wafer.

FIG. 37 is a block diagram showing the structure for canceling the external light component in the eighth embodiment.

FIG. 38 is a rough structural diagram showing the structure of the reflected light detector according to the ninth embodiment of the present invention.